

What is claimed is:

1. A cellulose ester film comprising a property of:  
a peak of infrared absorption spectrum being in a range from  
5 520  $\text{cm}^{-1}$  to 480  $\text{cm}^{-1}$ .

2. A cellulose ester film as claimed in claim 1, further  
comprising a property of:  
retardation in thickness direction ( $R_{th}$ ) being at least  
10 35 nm.

3. A cellulose ester film as claimed in claim 2, further  
comprising a property of:  
retardation in-plane ( $R_e$ ) being in a range of -50 nm to 5  
15 nm, wherein a feeding direction in producing said cellulose ester  
film is a positive direction.

4. A cellulose ester film as claimed in claim 3, wherein  
the thickness of said cellulose ester film is in a range of 35  
20  $\mu\text{m}$  to 65  $\mu\text{m}$ .

5. A cellulose ester film as claimed in claim 4, wherein  
said cellulose ester is cellulose acylate.

25 6. A cellulose ester film produced by casting a dope containing  
cellulose ester and a solvent, said cellulose ester film  
comprising a property of:  
a tear strength being at least 6g.

7. A cellulose ester film as claimed in claim 6, further comprising a property of:

a peak of infrared absorption spectrum being in a range  
5 of 520  $\text{cm}^{-1}$  to 480  $\text{cm}^{-1}$ .

8. A cellulose ester film as claimed in claim 7, further comprising a property of:

retardation in thickness direction (Rth) being at least  
10 35 nm.

9. A cellulose ester film as claimed in claim 8, further comprising a property of:

retardation in-line (Re) being in a range of -50 nm to 5  
15 nm, wherein a feeding direction in producing said cellulose ester film being a positive direction.

10. A cellulose ester film as claimed in claim 9, wherein said cellulose ester film is in a range of 35  $\mu\text{m}$  to 65  $\mu\text{m}$  thickness.  
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11. A cellulose ester film as claimed in claim 10, wherein said cellulose ester is cellulose acylate.

12. A producing method of a cellulose ester film comprising  
25 the steps of:

A. casting a dope on a substrate from a casting die to form a gel-like film, said dope containing a solvent and solid contents such as cellulose ester;

B. peeling said gel-like film from said substrate;

C. regulating temperature of said gel-like film in a range of 80 °C to 140 °C when the content of said solvent in said gel-like film is in a range of 20 wt.% to 100 wt.% to said solid contents, said gel-like film forming said cellulose ester film after dry.

13. A producing method of a cellulose ester film comprising the steps of:

10 A. casting a dope on a substrate from a casting die to form a gel-like film, said dope containing a solvent and solid contents such as cellulose ester;

B. peeling said gel-like film from said substrate;

15 C. applying tension of 25 kg/m to 250 kg/m in a widthwise direction of said gel-like film when the content of said solvent in said gel-like film is in a range of 20 wt% to 100 wt.% to said solid contents, said gel-like film forming said cellulose ester film after dry.

20 14. A producing method of a cellulose ester film as claimed in claim 13, temperature of said gel-like film ranges from 80 °C to 140 °C in said step C.

25 15. A producing method of a cellulose ester film as claimed in claim 14, said dope is cooled to have a temperature of at most 5 °C in said step A.

16. A producing method of a cellulose ester film, an infrared

absorption spectrum of said cellulose ester film having a peak in a range of  $520\text{ cm}^{-1}$  to  $480\text{ cm}^{-1}$ , a tear strength being at least 6g, and retardation in thickness direction (Rth) being at least 35 nm, said producing method comprising the steps of:

5       A. cooling a substrate to have temperature at most  $5\text{ }^{\circ}\text{C}$ ;

      B. casting a dope on said substrate from a casting die section to form a gel-like film, said dope containing a solvent and solid contents such as cellulose ester;

      C. peeling said gel-like film out of said substrate;

10       D. applying tension in a range of 25 kg/m to 250 kg/m to a widthwise direction of said gel-like film when the content of said solvent in said gel-like film is in a range of 20 wt% to 100 wt.% to said solid contents, said gel-like film forming said cellulose ester film after dry.

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      17. A producing method of a cellulose ester film as claimed in claim 16, wherein temperature of said gel-like film ranges from  $80\text{ }^{\circ}\text{C}$  to  $140\text{ }^{\circ}\text{C}$  in said step D.

20       18. A producing method as claimed in claim 17, further comprising the steps of:

      measuring infrared absorbance in said cellulose ester film after said step D to obtain a peak intensity in a range of  $520\text{ cm}^{-1}$  to  $480\text{ cm}^{-1}$ ;

25       adjusting temperature or tension of said gel-like film of said step D in accordance with said peak intensity.

      19. A producing method of a cellulose ester film as claimed

in claim 17, wherein said gel-like film has a multi-layer structure.

20. A producing method of a cellulose ester film as claimed  
5 in claim 19, wherein said casting die section is a multimanifold casting die having plural manifolds.

21. A producing method of a cellulose ester film as claimed  
in claim 19, wherein said casting die section is a casting die  
10 having a feed block on an upstream side to a flow of said dope.

22. A producing method of a cellulose ester film as claimed  
in claim 19, wherein said casting die section includes plural  
casting dies.  
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23. A producing method of a cellulose ester film as claimed  
in claim 19, wherein the thickness of said cellulose ester film  
is in a range of 20  $\mu\text{m}$  to 120  $\mu\text{m}$ .

20 24. A producing method of a cellulose ester film as claimed  
in claim 23, wherein said cellulose ester is cellulose acylate.

25. A producing method of a cellulose ester film as claimed  
in claim 24, wherein said cellulose ester film is used for a  
25 protective film for a polarizing filter.

26. A producing method of a cellulose ester film as claimed  
in claim 24, wherein said cellulose ester film is used for an

optical functional film.

27. A producing method of a cellulose ester film as claimed  
in claim 24, wherein said cellulose ester film is used for a  
5 polarizing filter.

28. A producing method of a cellulose ester film as claimed  
in claim 24, wherein said cellulose ester film is used for a  
liquid crystal display device.

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29. A producing method of a cellulose ester film, said  
cellulose ester film being produced by casting a dope containing  
a solvent and solid contents such as cellulose ester to form  
a gel-like film and by drying said gel-like film with applying  
15 tension on it, said producing method comprising:

measuring infrared absorbance in said cellulose ester film  
during continuous production to obtain a peak intensity in a  
range of  $520\text{ cm}^{-1}$  to  $480\text{ cm}^{-1}$ ; and

adjusting temperature of said gel-like film for drying and  
20 said tension of said gel-like film in accordance with said peak  
intensity.

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